

IN THE CLAIMS:

1. A method of inspecting a mask comprising the steps:

patterning a semiconductor material with a reference mask,

5 patterning the semiconductor material with the mask as the inspection item,

inspecting both patterns on the semiconductor material by means of an apparatus suitable for inspecting the semiconductor material, and

10 comparing the pattern generated by the inspection item mask to the pattern generated by the reference mask to detect deviations in the inspection item mask from the reference mask.

2. The method as set forth in claim 1 wherein patterning the semiconductor material by the mask is done lithographically.

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3. The method as set forth in claim 1 wherein one or more semiconductor wafers are multiply patterned by the reference mask and by the inspection item mask, the patterns generated by the reference mask are compared to the patterns generated by the inspection item mask in pairs, recurrent discrepancies between
20 the two patterns compared are detected and deviations in the inspection item mask from the reference mask being established from the recurrent discrepancies.

4. The method as set forth in claim 3 wherein the masks are reticules.

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5. The method as set forth in claim 4 wherein patterning by the reference reticule and by the inspection item reticule is done side-by-side on a single wafer.

6. The method as set forth in claim 5 wherein the patterns of the reference
30 reticule and of the inspection item reticule are arranged alternately side-by-side in columns on the wafer.

7. The method as set forth in claim 5 wherein two patterns located side-by-side on the wafer are each compared in sequence.

5 8. The method as set forth in claim 5 wherein three patterns located side-by-side on the wafer are each compared in sequence.

9. The method as set forth in claim 1 wherein the inspection item mask features an intentional change as compared to the reference mask.

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10. The method as set forth in claim 9 wherein the pattern of the inspection item mask is increased or reduced in size as compared to the pattern of the reference mask.

15 11. The method as set forth in claim 10 wherein the pattern of the inspection item mask is reduced in size by 0.1 μm as compared to the pattern of the reference mask.

20 12. The method as set forth in claim 1 wherein the apparatus suitable for inspecting semiconductor material generates a digitized image of a portion of a wafer.

25 13. The method as set forth in claim 12 wherein the apparatus suitable for inspecting the semiconductor material compares the digitized images of patterns located side-by-side.

30 14. The method as set forth in claim 12 wherein the resolution of the apparatus suitable for inspecting the semiconductor material is high enough to reliably detect deviations in the range of the pattern width lithographically resolvable as a minimum when comparing two images.